

## CLAIMS

1. A method of bleaching cellulose pulp in a bleaching line, having at least two bleaching steps comprising a first ( $D_1$ ) and a second ( $D_2$ ) bleaching step, as seen in the direction of flow of the cellulose pulp through the bleaching line, which bleaching steps have wash apparatuses ( $W_4$ ,  $W_5$ ) for the pulp arranged after the first and the second bleaching step, respectively, and in which wash liquor and where appropriate dilution liquor is led in principle in counter-current to the pulp flow through the bleaching steps in the bleach line ( $W_1-D_0-W_2-EO/EOP-W_3-D_1-W_4-D_2-W_5$ ), characterised in
  - that the wash liquor is supplied in a main conduit (1) that is pressurised during steady state,
  - that at least one of wash liquor and dilution liquor is taken to the subsequent wash ( $W_5$ ) of the second bleaching step ( $D_2$ ), from a first branch position (A1) in the main conduit and at least a part of the wash filtrate from the subsequent wash of the second bleaching step is led to a second branch position (A2) in the main conduit,
  - that at least one liquor of wash liquor and dilution liquor is taken to the subsequent wash ( $W_4$ ) of the first bleaching step ( $D_1$ ) from a third branch position (A3) in the main conduit, and at least a part of the wash filtrate from the subsequent wash of the first bleaching step is led to a fourth branch position (A4) in the main conduit,
  - in which the branch positions (A1-A4) connect to the main conduit with the first branch position (A1) arranged first, as seen in the direction of flow in the main conduit, and the second to fourth branch positions (A2-A4) in succession.
- 25 2. A method according to claim 1 characterised in that a base level of pressure in the main conduit is established at a level in the range 1,5-3,5 bars.
3. A method according to claim 2 characterised in that dilution and wash liquids taken from the main conduit to dilution vessels or wash apparatuses operating at pressures above the base level is pressurised by a second pressurising means, preferably a pump.

4. A method according to claim 1 characterised in that the base level of pressure in the main conduit is established at a level in the range 4,5-6,5 bars, wherein preferably no further pressurisation of the liquid is necessary.

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5. A method according to any of claims 1-4, characterised in that the main conduit is connected to receive and distribute acidic filtrate from and to, respectively, acidic bleaching steps.

10 6. A method according to any of claims 1-4, characterised in that the main conduit is connected to receive and distribute alkaline filtrate from and to, respectively, alkaline bleaching steps.

15 7. A method according to claim 5 or 6, characterised in that upstream said first branch position (A1) in the first end of the main conduit, a main pressurising device, preferably a pump (P20) or a pressurised wash liquid tank, is provided which pressurises the main conduit and establishes a basic flow in the main conduit in a direction reverse to the formed flow of cellulose pulp in the bleaching line.

20 8. A method according to claim 7, characterised in that before the second (A2) and fourth (A4) branch positions, filtrate is led to the main conduit (1), via pump devices (P21', P22').

25 9. A method according to claim 1, 5 or 6, characterised in  
- that at least one additional bleaching step ( $D_0$ ) is provided before the first and second bleaching steps, as seen in the direction of flow of the cellulose pulp, after which additional bleaching step a wash apparatus ( $W_2$ ) is provided for the pulp,  
– that at least one liquor of wash liquor and dilution liquor is taken to the subsequent wash of the additional bleaching step, from a fifth branch position (A5)  
30 in the main conduit (1) and that at least a part of the wash filtrate from the subsequent wash of the additional bleaching step is led to a sixth branch position (A6) in the main conduit,

– in which the branch positions connect to the main conduit with the fifth branch position arranged after the fourth branch position, as seen in the direction of flow in the main conduit, and the sixth branch position in succession thereafter, and wherein the fifth and sixth branch conduits are connected to the established common base level of pressure in the main conduit.

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10. A method according to claim 9, characterised in that an extraction step (EO/EOP) is provided after the additional bleaching step and before the first bleaching step, as seen in the direction of flow of the cellulose pulp through the bleaching line, and that a wash apparatus ( $W_3$ ) is arranged after the extraction step.

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11. A method according to claim 10, characterised in that the wash filtrate from the subsequent wash of the extraction step, at least partly is used as dilution liquor for the wash step subsequent to the additional bleaching step, and that a part of this wash filtrate when needed is drawn off from the process.

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12. A method according to claim 9, characterised in that the cellulose pulp is washed in a wash apparatus before the additional bleaching step, as seen in the direction of flow of the cellulose pulp through the bleaching line, and that at least one liquor of wash liquor and dilution liquor is taken to this wash apparatus from a seventh branch position in the main conduit.

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13. A method according to any one of the preceding claims, characterised in that at least chlorine dioxide, or some other bleaching chemical that is compatible throughout the bleaching steps, is used as active bleaching agent in the bleaching steps, which chlorine dioxide is added to the pulp in a blending apparatus before the bleaching step.

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14. A method according to any one of the preceding claims, characterised in that at the other end of the main conduit, as seen after the branch points (A1-A7), an outlet (10) is provided, from which wash liquor and filtrate can be drawn off.

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15. A method according to claim 14, characterised in that the outlet is controlled by a pressure and/or flow controlling control valve, which control valve can achieve feed-back control of the main pump device to secure a predetermined pressure and/or flow throughout the entire main conduit (1).